Amendments to the Specification:

Please replace paragraph [0009] with the following amended paragraph:

[0009] A number of terms utilized within the application are now described. The term packet will be used herein to collectively refer to blocks of information, such as within a packet stream. Packets as broadly referred to herein are inclusive of all information units, including headers, used to transport data and/or control information between nodes of the network. A data object to be sent is divided into a sequence of packets. Typically the packets are sent sequentially based on their position in the original data object. When sequential packets are communicated one after another in sequence they are referred to as being "back-to-back" packets, since they are sent in a single burst and the sequence is not broken by the communication of other forms of packets, such as according to retransmitting in response to packet errors. If sufficient bandwidth exists larger numbers of packets should be sent back-to-back. A segment is considered herein to comprise the data portion of any TCP/IP data packet or acknowledgment packet, and may have a size up to the maximum segment size (MSS) value in bits. The MSS is considered to be the size of the largest segment that the sender can transmit. This value can be based on the maximum transmission unit (MTU) of the network, the path MTU discovery algorithm, receiver maximum segment size (RMSS) [[RMSS]] or other factors. The segment size is not considered to include the TCP/IP headers and options. Congestion window, cwnd, is considered to comprise a TCP state variable that limits the amount of data a TCP can send. Data having a sequence number higher than the sum of the highest acknowledged sequence number and the minimum of cwnd is not to be sent over the TCP.

Please replace paragraph [0010] with the following amended paragraph:

[0010] As is well known, the transmission control protocol (TCP) corresponds to the transport layer (layer 4) of the open system interconnection (OSI) [[OSI]] reference model. The transmission control protocol generally provides stream data transfer, multiplexing, full duplex operation, segmentation and reassembly, along with efficient flow control.

Please replace paragraph [0013] with the following amended paragraph:

[0013] In packet communication based on TCP/IP, a host for transmitting data generally fragments the data into a plurality (sequence) of segments. The host typically adds header information to the segments, such as a transmission source address or destination address, and sends the resultant packet to a network. At this time, the maximum packet length ~~(MTU)~~ transmittable from each host to a network is determined by the MTU supported by the protocol of the data link layer of a network connected to the host for exchanging data.

Please replace paragraph [0038] with the following amended paragraph:

[0038] The back-to-back packet marking facilitates improves bandwidth estimation provided with delayed acknowledgement algorithms. In this aspect of the invention the value of *m* for delayed packet pairs/trains is modified in response to bandwidth estimations based on the explicit back-to-back packet marking, wherein the length of packet pairs/trains *m* to be transmitted by a sender is changed.

Please replace paragraph [0059] with the following amended paragraph:

[0059] According to this scenario the receiver determines the parameters for controlling the congestion it is experiencing and the transmissions from the sender are modulated in response to those parameters. A data packet output is transmitted over data packet link 130 with explicit back-to-back packet markings from sending node 110 to receiving node 120. Sending node 110 fragments data to be transmitted in its transport layer into a number of segments in accordance with the TCP MSS (maximum segment size), to which headers are attached forming a sequence of packets. Receiving node 120 receives data packets transmitted by sending node 110 and outputs an acknowledgment packet over ACK packet link 140 back to sending node 110 in response. Receiver node 120 utilizes the explicit back-to-back packet markings to accurately estimate bandwidth wherein it can properly regulate sender side packet sending and control the packet train length value of *m* when sending delayed ACKs.

Please replace paragraph [0064] with the following amended paragraph:

[0064] Referring again to FIG. 2, a second packet marking embodiment is represented by the MSS (maximum segment size) rewrite unit 210, which modulates the segment size from the MSS value to indicate whether packets are being sent back-to-back. It should be appreciated that only one explicit ~~packing~~ packet marking mechanism would typically be utilized, although a system could be implemented with more than one to allow it to be configured to use one or the other for various forms of network deployment.

Please replace paragraph [0067] with the following amended paragraph:

[0067] In order to establish receiver-side bandwidth estimation, receiver node 120 needs to know which packets were transmitted back-to-back. Back-to-back packet detection unit 230 is configured according to included embodiments to detect packets which are marked utilizing either a back-to-back bit or reduced segment size from the MSS value. Back-to-back packet detection unit 230 checks to see if the packet header has been modified, or if the number of bits within the segment of the packet has been changed, such as containing fewer bits than specified by MSS (maximum segment size). It should be appreciated that the value of MSS is generally negotiable. In one embodiment of the present invention, when the sender has enough data to transmit multiple packets back-to-back, the MSS rewrite unit 220 uses [[a]] (MSS - n) bytes as the size of packets to indicate explicitly that the particular packet is being transmitted back-to-back. For example, the value of *n* is preferably kept small (e.g., 1, 2 or 4). The back-to-back packet detection may be performed continuously or it may be performed in response to detecting specific conditions on the network, such as congestion which can trigger the back-to-back packet detection.

Please replace paragraph [0079] with the following amended paragraph:

[0079] Referring to the figure, once receiver 120 requests a packet transfer to start as depicted at block 410, the sender node marks packets which are to be sent back-to-back as per block 420, such as by utilizing a header bit or changing segment size. The packets are sent at block 430 according to the prevailing value for packet train length *m*, which starts at a low value (i.e. *m* = 2).